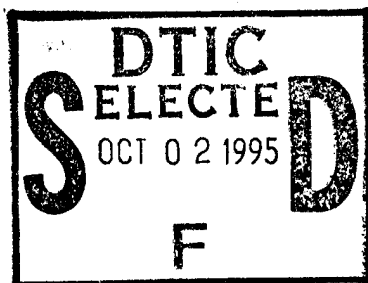


# NAVAL POSTGRADUATE SCHOOL MONTEREY, CALIFORNIA



## THESIS

### A STATISTICAL PROFILE OF SUCCESSFUL HOSPITAL CORPSMEN

by

Scott M. Jones

March, 1995

Thesis Co-Advisors:

Alice Crawford  
Stephen Mehay

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19950928 008

DTIC QUALITY INSPECTED 5

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY	2. REPORT DATE March 1995.	3. REPORT TYPE AND DATES COVERED Master's Thesis		
4. TITLE AND SUBTITLE A Statistical Profile of Successful Hospital Corpsmen		5. FUNDING NUMBERS		
6. AUTHOR Scott M. Jones				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey CA 93943-5000		8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSORING/MONITORING AGENCY REPORT NUMBER		
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.		12b. DISTRIBUTION CODE		
13. ABSTRACT The purpose of this thesis is to determine personal and background characteristics that are correlated with successful performance of Navy Hospital Corpsmen. Success is operationally defined to include three components: (a) completion of the enlistment; (b) promotion to petty officer; and (c) reenlistment for a second term. This thesis develops multivariate logit models to evaluate the probability of success in each of these categories and to assess the effect of specific demographic variables of the probabilities. High school graduation with a diploma is the most significant characteristic of successful Hospital Corpsmen. Those Hospital Corpsmen scoring in the upper 35 percentile on the AFQT are also more likely to be successful than those scoring below the 65th percentile. Also recruits over 20 years of age at enlistment have higher probabilities of success than younger recruits. The effects of these variables on success for Hospital Corpsmen are compared to two comparison group: (a) Machinist Mates; and (b) sailors from all the other enlisted ratings. Again, high school diploma graduation was the most important variable in predicting enlistment completion and aptitude was important in predicting promotion and reenlistment.				
14. SUBJECT TERMS Hospital Corpsmen, Success, Attrition		15. NUMBER OF PAGES * 70		
		16. PRICE CODE		
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)  
Prescribed by ANSI Std. Z39-18 298-102



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A STATISTICAL PROFILE OF  
SUCCESSFUL HOSPITAL CORPSMEN

by

Scott M. Jones  
Lieutenant Commander, United States Navy  
B.S., Marymount University, 1989

Submitted in partial fulfillment  
of the requirements for the degree of

**MASTER OF SCIENCE IN MANAGEMENT**

from the

**NAVAL POSTGRADUATE SCHOOL**

**March 1995**

Author:

*Scott Jones*

Scott M. Jones

Approved by:

*Alice Crawford*

Alice Crawford, Thesis Co-Advisor

*Stephen L. Mehay*

Stephen Mehay, Thesis Co-Advisor

*David Whipple for*

David Whipple, Chairman

Department of Systems Management

Accession For	
NTIS	CRA&I <input checked="" type="checkbox"/>
DTIC	TAB <input type="checkbox"/>
Unannounced <input type="checkbox"/>	
Justification .....	
By .....	
Distribution /	
Availability Codes	
Dist	Avail and/or Special
A-1	



## ABSTRACT

The purpose of this thesis is to determine personal and background characteristics that are correlated with successful performance of Navy Hospital Corpsmen. Success is operationally defined to include three components: (a) completion of the enlistment; (b) promotion to petty officer; and (c) reenlistment for a second term. This thesis develops multivariate logit models to evaluate the probability of success in each of these categories and to assess the effect of specific demographic variables of the probabilities. High school graduation with a diploma is the most significant characteristic of successful Hospital Corpsmen. Those Hospital Corpsmen scoring in the upper 35 percentile on the AFQT are also more likely to be successful than those scoring below the 65th percentile. Also recruits over 20 years of age at enlistment have higher probabilities of success than younger recruits. The effects of these variables on success for Hospital Corpsmen are compared to two comparison group: (a) Machinist Mates; and (b) sailors from all the other enlisted ratings. Again, high school diploma graduation was the most important variable in predicting enlistment completion and aptitude was important in predicting promotion and reenlistment.



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## I. INTRODUCTION AND BACKGROUND

### A. INTRODUCTION

The Hospital Corps has approximately 26,000 members making it about 10 percent of the enlisted force of the Navy. Hospital Corpsmen serve in a broad variety of duty assignments ranging from Independent Duty Corpsmen in isolated duty stations or onboard ships, to Field Medical Technicians with the Marine Corps, to General Duty Corpsmen in Navy hospitals or clinics. Hospital Corpsmen also serve in all the major allied health occupations. Corpsmen are operating room technicians, laboratory technicians, opticians, morticians, x-ray technicians, preventive medical technicians, and medical photographers. Since corpsmen are trained in skills that can be easily transferred to the civilian sector, it is important for the Navy to retain those corpsmen most likely to be successful and to select for training those individuals most likely to be retained. This thesis addresses those factors that are related to selected measures of success for the Hospital Corps rating.

Success can be defined from the viewpoint of the individual or the viewpoint of the Navy. From the sailor's viewpoint, he or she must be satisfied with the training, work environment, pay, and promotion potential to decide to stay rather than transfer to the private sector. From the Navy's viewpoint, the Navy must be sufficiently satisfied with the sailor's performance to choose to retain him or her. In this thesis success is defined based on three criteria. The first criterion is successful completion of the initial enlistment contract, or not attriting. This is important because the Navy invests large amounts of money in training sailors and most of the investment is made during the initial enlistment. The first-term attrition rate has been approximately 30 percent for the All-Volunteer force, from 1973 to present. If a sailor fails to complete the initial enlistment contract, either due to academic problems or problems adjusting to military life, the individual cannot be viewed as successful. The second criterion is promotion to the rank of Petty Officer Third Class (E-4), since this is a requirement for reenlistment. The last criterion is retention of the sailor beyond the initial enlistment contract or reenlistment.

## **1. Objectives**

The primary objective of this research is to provide the Navy with statistically valid indicators of success for the Hospital Corpsman rating. This study examines correlations between success and aptitude, as measured by scores on the Armed Forces Qualification Test (AFQT), and educational status, gender, race, and age. Correlations between success and duty station assignment after completion of Hospital Corps School are also examined. Once the correlations between success and these independent variables are established, a statistical profile of a successful Hospital Corpsman can be developed. This will provide those individuals responsible for assigning corpsmen to "C" schools with information to improve selection.

## **2. Scope of Research**

The datafile used in the analysis is based on cohorts of Navy enlisted personnel for fiscal years 1985 and 1988. These data were obtained from the Defense Manpower Data Center (DMDC) and Naval Personnel Research and Development Center (NPRDC). All Hospital Corpsmen were extracted from these files.

## **3. Methodology**

Frequencies, means, and standard deviations are evaluated to determine homogeneity of the subsamples across cohorts and occupational specialties. Cross tabulations are used to evaluate frequencies within subgroups such as race, gender, and subspecialty. Multivariate logit regression models are used to estimate any significant differences between successful members and unsuccessful members within and across cohorts.

## **4. Limitations and Assumptions**

Because Selective Reenlistment Bonuses (SRB) are used to shape the force, SRB multiples may vary throughout the year. The variation of the multiples may make a corpsman extend on active duty in hopes of becoming eligible for a SRB, or for an increase in the SRB multiple. SRB is mentioned because it is a factor in the sailor's decision to either extend or reenlist. Unfortunately, information on SRB increments are not included in the file used for this research. Therefore, though it may be a factor in the corpsman's decision to reenlist, this research is unable to model the impact of SRBs on the criterion of reenlistment.

The dataset does not include a variable for reenlistment eligibility for those corpsmen who had not separated from the Navy at the time the dataset was compiled. Also, the file does not make any distinction between those corpsmen who extended and those who actually reenlisted. Because the study is limited to only those with four year obligations, the reenlistment point is assumed to be at the end of forty-eight months of service. Due to the lack of reenlistment data on those corpsmen who did not separate another assumption is made that all corpsman still on active duty at the reenlistment point were eligible for reenlistment. This assumption is valid since no sailor who is not reenlistment-eligible should be allowed to reenlist or extend on active duty.

## **B. BACKGROUND**

The United States Navy Hospital Corps rating was established 17 June 1898 by an act of Congress in order to standardize the training given to the "bayman" on naval vessels. Bayman provided the medical care to sailors prior to the establishment of the Hospital Corps rating. Women did not start joining the Hospital Corps until World War II and, even then, women were primarily assigned administrative duties rather than patient care. Hospital Corpsman have served the United States with distinction. From 1900 through the Vietnam War twenty-one Hospital Corpsmen were awarded the Congressional Medal of Honor. No other rating has more individuals awarded more Medals of Honor.

### **1. Duties of Hospital Corpsmen**

Hospital Corpsmen assist doctors, nurses, and other health care professionals in delivering care to sailors and their families, both onboard ship and ashore. They serve in the field with the Marine Corps during training and on deployment. Corpsmen function in a wide variety of positions in Naval hospitals and operationally with the fleet and Marines. Medics in the other services are trained in a subspecialty and are assigned only within their specialty. A corpsman is a general duty corpsman first and may function as such even after receiving specialized training within the rating. As a general duty corpsman, an individual is responsible for assessing the patients on the ward or ship. They must diagnose the problem and develop a treatment plan to address the diagnosis. The corpsman is responsible for providing the direct

care and supervising less experienced corpsman in their department. The duties they perform in providing this direct care include administering medications, drawing blood samples and running the chemistry tests necessary to make the diagnosis. Some corpsmen are trained to suture wounds, take and develop X-ray, assist in surgery, perform field preventive medicine, and repair sophisticated medical equipment. Corpsmen are even training to perform many of the duties usually associated with doctors while on smaller ships and in isolated duty. Each of these specialties is assigned a Navy Enlisted Classification code (NEC) to designate advanced training in the Hospital Corps rating. Table 1 lists the different NECs available to hospital corpsmen.

## **2. ASVAB Requirements**

The ASVAB requirements for selection for Hospital Corps "A" School are a composite score of 149 on three subtests of the ASVAB. The first subtest is the Verbal Composite, which is a combination of Word Knowledge (WK) and Paragraph Comprehension (PC). The word knowledge subtest evaluates the applicant's ability to determine the correct meaning of a word by how it is used in context and to select a synonym for the selected word. The paragraph comprehension subtest determines how well the applicant is able to extract information out of a written passage. The second subtest is the Mathematics Knowledge (MK). The mathematic knowledge test measures high school mathematic principles. The last subtest is the General Science (GS). This test measures knowledge in the physical and biological sciences (Eitelberg, 1988).

## **3. "A" School Training**

Approximately 4000 Navy recruits go to Hospital Corps School (HCS) each year. The majority of the training is provided at Naval Training Center (NTC) Great Lakes, IL. Only 30 percent of the training is provided at NTC San Diego, CA. The "A" school training is twelve weeks long.



NEC	TITLE	NEC	TITLE
8401	SAR CORPSMAN	8467	OCC THER TECH
8402	NUC SUB MED TECH	8472	MED PHOTO TECH
8403	AMPH RECON IDC	8478	BASIC MED REPAIR
8404	FIELD MED TECH	8479	ADV MED REPAIR
8406	AEROSP MED TECH	8482	PHARMACY TECH
8407	RAD HEALTH TECH	8483	OR TECH
8408	CARDIOVASC TECH	8485	PSYCH TECH
8409	AEROSP PHYS TECH	8486	UROLOGY TECH
8416	CLIN NUC MED TECH	8489	ORTHO TECH
8424	MEDICAL ADMIN TECH	8491	SPEC OPS IDC
8425	INDEPENDENT DUTY	8492	SPEC OPS TECH
8427	FMF RECON CORPSMAN	8493	DEEP SEA DIVE TECH
8432	PREVENT MED TECH	8494	DEEP SEA DIVE IDC
8434	HEMODIALYSIS TECH	8495	DERMATOLOGY TECH
8445	OCCULAR TECH	8496	MORTICIAN
8446	OTOLARYN TECH	8501	BASIC LAB TECH
8451	BASIC X-RAY TECH	8503	HISTOLOGY TECH
8452	ADVANCE X-RAY TECH	8505	CYTOLOGY TECH
8454	EEG TECH	8506	ADV LAB TECH
8463	OPTICIAN TECH	8541	RESP THER TECH
8466	PHYSICAL THER TECH	0000	GENERAL CORPSMAN

Table 1  
Hospital Corpsman Navy Enlisted Classification List  
Enlisted Education and Training Programs 1993-1994 Vol 1, No. 4  
Naval Health Sciences Education and Training Command

The school is divided into four phases each emphasizing a specific area of the hospital corpsman's role. Table 2 provides a breakdown of instructional hours in the curriculum of Hospital Corps School.

Unit	Didactic Hours	Laboratory Hours	Clinical Hours	Total Hours
Fundamentals	51.0	6.0	0.0	57.0
Emergency Care	99.5	65.0	0.0	164.5
Nursing Procedures	106.5	51.0	0.0	157.5
Clinical Experience	0.0	0.0	76.0	76.0

Table 2  
Hospital Corps School Curriculum  
Revision 9 November 1993  
Source: Hospital Corps School, Great Lakes, IL

The graduates are assigned to one of twenty-five commands designed to provide follow-on training. The corpsman goes to the follow-on training site for twenty-four months after graduating "A" school. A small proportion of HCS graduates go directly to "C" schools and the majority of these go to Field Medical Service School (FMSS) at either Camp Pendleton, California or Camp Lejeune, North Carolina. Field Medical Service School has 1694 seats for active duty corpsmen each year and is only fifty-one days in length. The course at FMSS teaches corpsmen the first aid and triage skills required in a field first-aid station along with the evacuation procedures for removing the injured from the combat zone. It also teaches the organization and logistical processes involved in providing care in the field. The final area of instruction is in field sanitation and preventive medicine to prevent the spread of disease in less than ideal situations. Together with the General Duty Corpsman (0000), the Field Medical Service Technicians (8404) are the basic hospital corpsman according to information supplied by the community manager in the Bureau of Personnel, Washington D.C.

#### 4. Specialized (NEC) Corpsmen

The hospital corps rating has forty-two NECs, forty-one specialty corpsmen and the general duty corpsman. The "C" schools to acquire these NECs range from 51 days for the Field Medical Technician to 378 days for Cardiovascular Technician and Advanced Laboratory Technician. The cost of training in the "C" schools range from \$10,553 for Physical Therapy Technicians to \$77,489 for the Submarine Independent Duty Corpsman. Training costs were provided from Commander R. J. Carroll, Hospital Corpsman Community Manager. Because of the high cost of training many of the more expensive "C" schools require the corpsman to meet higher academic standards and often to attain a rank of E-4. The requirement rises to E-6 for the independent duty corpsman schools.



## II. LITERATURE REVIEW

The measures of success for an enlisted sailor in the United States Navy appear in the literature under various topics. Several studies have looked at the variables associated with attrition. Other studies have focused on promotion and reenlistment. Still other studies have combined non-attrition, promotion, and reenlistment as evidence of success for enlisted sailors in the All-Volunteer Force. This chapter begins with a review of the literature that has defined measures of success. Next, the review examines studies of the influence of education, aptitude, race, gender, age, marital status, and prior experience on these measures of success. The chapter concludes with a review of the literature that considers the effects of the Delayed Entry Program (DEP) on measures of success.

### A. MEASURES OF SUCCESS

Previous research has examined the three measures of success used in this study. For example, Booth, Bucky, and Edwards (1975) conducted research to determine the personality characteristics of effective hospital corpsmen. They defined an effective corpsman as one who had completed the enlistment contract and was recommended for reenlistment. They studied a sample of 9315 enlisted members entering the Navy from 1966 to 1969. Within this group there were 1315 hospital corpsmen and 8000 non-corpsmen. The authors found that 82 percent of the corpsmen met the criteria for effectiveness, as compared to 90 percent for the other ratings.

A Recruit Temperament Survey was administered to the recruits along with the Armed Services Vocational Aptitude Battery (ASVAB). Effective hospital corpsmen were found to be significantly more likely to complete high school than ineffective corpsmen. They found that the personality characteristics doubled their accuracy in differentiating effective from ineffective corpsmen. Effective hospital corpsmen were found to be more likely to be trusting of others, reported more intense feelings, tended to worry about small details, and were more likely to be elected to office in clubs and organizations than ineffective corpsmen and sailors from other ratings.

Cooke and Quester (1988) analyzed 171,015 non-prior service male recruits with four-year obligations from 1978 to 1982 to determine the characteristics of successful enlistees in the All-Volunteer Navy. The authors chose non-attrition, promotion to E-4, and retention beyond the initial enlistment as three criteria for success. Their sample was comprised of 73 percent high school diploma graduates, 9.4 percent General Equivalency Degree (GED) recipients, and 17.4 percent non-graduates. They took a random sample of 17,623 to use in their logit regression analysis. Three separate regressions were run with each criteria of success as the dependent variable and a standard set of explanatory variables. The demographic explanatory variables used in their study include educational status indicated by high school graduation, aptitude measured by mental category on the AFQT, entry into the DEP, race indicated by black or Hispanic ethnicity, and entry into the Navy as a general detail sailor.

They found recruits with high school diplomas were significant more likely to complete their enlistment with promotion to E-4 than nongraduates. Those recruits without a high school diploma were less likely to complete their enlistment, less likely to promote to E-4 by the end of the enlistment, and less likely to be retained beyond their enlistment. Young graduates (age 17-18) were less likely to reenlist compared to older graduates. There was no statistically significant difference between young and older graduates in completing their enlistment and promotion to E-4. The recruits who entered the DEP were more likely to meet the three success criteria than those entering active duty during the month of their enlistment. The longer a recruit stayed in the DEP the higher the probability of completing the enlistment with the rank of E-4, and being retained in the Navy. Blacks and Hispanic were more likely to complete their enlistment at E-4 and be retained than whites according to this study. Those sailors entering the Navy as GENDETs were less likely to complete their enlistment, promote to E-4 and be retained after the obligation expired.

These three criteria for success also were examined by Shiells (1991) in a comparison of recruits who had received their rating through on-the-job training versus through "A" school in thirteen nontechnical ratings. Shiells studied approximately 50,000 recruits from fiscal year 1981 through fiscal year 1985. Logit regressions were run to predict survival to 45 months

of active duty, promotion to E-4 by 45 months of active duty, survival to 60 months, and promotion to E-5 by 60 months. Forty-five months was used to indicate completion of a 4-year obligation since sailors not wanting to reenlist could take 90 days leave at the end of their enlistment and still be credited with completing their enlistment. The 60-month point was used to indicate reenlistment since it allows sailors separating from the service up to one year after the completion of their enlistment to decide to reenlist.

Shiells' results were similar to those reported by Cooke and Quester. Those sailors who received their rating through on-the-job training were more likely to survive to 45 months and be advanced to E-4 by 45 months than the "A" school graduates. However, by the 60-month point the survival, promotion, and reenlistment rates were not significantly different. Shiells noted that high school graduation was a significant characteristic in predicting survival, promotion, and reenlistment. Furthermore, women were found to be more likely to be successful as measured in this study. Non-whites were also more likely to succeed according to the Shiells study. Finally, entry into the DEP was significant in increasing the likelihood of success using the four criteria. The variables were significant for both "A" school and on-the-job trained sailors.

The literature supports the use of the three measures of success used in this thesis. First, an enlistee cannot be successful if he or she fails to complete the initial enlistment contract. Therefore, background literature related to these criteria of success can be found in the attrition literature. Those characteristics that increase the likelihood of an individual attriting from the Navy decrease the likelihood of success for the individual. Promotion to E-4 is both required for reenlistment and is the proxy for transition from the initial stage of a career into the next stage of career progression. Because of the significance of promotion to E-4, it is a valid criterion of success. Also, without reliable performance evaluation data, promotion can be viewed as a result of at least satisfactory performance. The third criterion of reenlistment is used in various studies as an indicator of job match success. In order for a sailor to reenlist, the sailor must have performed satisfactorily enough to be recommended for reenlistment and be satisfied enough with the Navy and his job to choose to remain within the organization beyond his or her obligation.

## B. AFQT CATEGORY

The Armed Forces Qualification Test (AFQT) is a subtest of the ASVAB. The AFQT is an "aptitude composite" used by all the services to qualify potential recruits for entry into the military. It is a combination of the Verbal Composite (VE), the Arithmetic Reasoning (AR) and Numeric Operations (NO). Recruits are placed in a mental category based on their percentile scores.

Table 3 shows the breakdown of AFQT categories by the percentiles. The services do not use this composite for placement into a specific rating or occupation. Other composites are used for occupational placement (Eitelberg, 1988). Since all the services use this composite as a measure of aptitude, it is quite relevant to the prediction of success in the Navy.

AFQT CATEGORY	AFQT PERCENTILE
1	93 - 99
2	65 - 92
3A	50 - 64
3B	31 - 49
4	10 - 30
5	1 - 9

Table 3  
Population Representation for AFQT Categories  
Source: Manpower for Military Occupations, 1988

Aptitude has been shown to be highly correlated with success. Many studies have shown correlations between higher AFQT results and lower attrition propensity. For example, Byrnes, Marcus, and Thomason (1989) found that classification in the higher mental categories was correlated with a decrease in academic attrition. The results showed that AFQT was a better measure of aptitude than completing high school. Aptitude has been shown to be correlated with increased retention and reenlistment. Lempe (1989) found that



high AFQT scores, measured by upper mental categories, were directly related to retention of first-term Air Force enlisted members.

### C. EDUCATION STATUS

Education has been identified as an excellent predictor of attrition, promotion, and retention. Several attrition studies have shown the strong influence that additional education has on reducing first-term attrition. The definition of education in most studies is the completion of high school with a diploma. Several studies have compared the attrition propensity of high school diploma graduates (HSDG) to nongraduates. High school diploma graduation has been identified as a strong predictor of success for hospital corpsman (Booth, Bucky, and Edwards, 1974). Goffman (1977) studied 1,315 students of Hospital Corps School entering from November 1966 through August 1967 who successfully graduated from the school. Graduates were coded zero for effectiveness if they separated prematurely, were separated at the convenience of the service, or were not recommended for reenlistment. The graduates were coded one for completion of the enlistment with a recommendation for reenlistment. Aptitude, measured by the General Classification Test (GCT) and education had the highest correlations with effectiveness. Both studies looked at hospital corpsman in the Vietnam Era to identify the characteristics of successful (as measured by the three criteria used in this study) hospital corpsmen.

Byrnes, Marcus, and Thomason (1989) studied the effect of student quality on training attrition. They tracked approximately 35,000 "A" school students in fiscal years 1981, 1983, and 1985. The sample was divided into highly technical and nontechnical ratings to prevent comparing attrition patterns of dissimilar training tracks. Multinomial logit models were run with non-attrition, academic attrition, and non-academic attrition as dependent variables. The independent variables included education, high school diploma graduate, aptitude measured by the mental category from the AFQT, and length of school. Seven possible quality combinations resulted since the Navy does not recruit non-graduates in the lower AFQT categories. The study sought to learn if education had the same influence on academic attrition as non-academic attrition. The researchers found that high school graduation was

correlated with lower non-academic attrition while having little effect on lowering academic attrition. This led to the conclusion, with respect to attrition, that high school completion is evidence of being able to adapt or follow through with a task rather than simply a measure of intelligence.

Byrnes and Marcus (1991) looked at training attrition and determined the influence of completing high school with a General Equivalency Degree (GED) on attrition. Most previous studies combined GED graduates with HSDG as high school graduates for comparison with nongraduates. Byrnes and Marcus found that GED recipients are more likely to attrite than diploma graduates but less likely to attrite than nongraduates. Similarly, Quester (1990), in a study conducted exclusively on females, found education to be a significant variable in reducing their attrition.

#### D. RACE

Race or ethnic background has been found to be useful in predicting success as defined by this study. Blacks and Hispanic are frequently compared to whites to determine probability for success and to evaluate equal opportunity programs. Blacks and Hispanic have been shown to be more likely than whites to complete their enlistments and to reenlist (Cooke and Quester, 1992). Many studies have cited the lack of opportunity in the civilian community as an explanation for these phenomena. Since many retention and reenlistment studies focus on the cost of leaving, a lack of civilian opportunities increases the cost of leaving, thereby increasing the likelihood of retention. Retention studies concur with the human capital theory that minorities have higher reenlistment rates than whites (Lamboni, 1987; Reardon, 1988).

#### E. AGE

Age at enlistment has been examined in recent years for its impact on success. Attrition studies on males have found that early attrition increases with age at enlistment. These results may be related to the increased probability of acquiring and losing multiple jobs between high school and enlistment and the slight decrease in the number of high school diploma graduates in the older population (Buddin, 1984). Older recruits may have chosen to enlist only after exhausting other opportunities.

The retention and reenlistment studies found that older sailors were more likely to remain in the Navy at their first reenlistment point than younger sailors (Reardon, 1988). The retention results are best explained using human capital theory. Younger sailors have longer periods to receive the benefit of the training obtained in the Navy and therefore are more likely to attempt to market their skills outside the military (Ehrenberg and Smith, 1994).

Age has a different effect on females. Attrition rates drop as age increases, primarily in the area of attrition due to pregnancy or parenthood (Quester, 1990). Since hospital corpsman is a shore-intensive rating, it would be expected that females would be over-represented and therefore the results of age may be different than the rest of the Navy.

#### F. GENDER

Most of studies of successful enlistees have focused on males. This is most likely due to the proportionally large number of men in the Navy and the ceiling on the percentage of women in the Navy. The combat exclusion, preventing women from going on combatant ships until 1992, resulted in the majority of time and money being concentrated on selection criteria for men. Since the Navy has a limit on the number of women, the Navy can be more selective in recruiting women. This increased selectivity has resulted in more high school diploma graduates, and more female recruits from CAT I and CAT II. Women have also been assigned to more shore duty and nontechnical ratings (Eitelberg, 1988). Extensive sea time and high tech ratings have been correlated with decreased retention (Warner and Goldberg, 1974). Therefore, women would be expected to have higher retention rates.

#### G. STRIKERS

Approximately 40 percent of boot camp graduates are sent directly to the fleet as general detail enlistees (GENDETs). These individuals generally do not score in the higher AFQT categories, or are not sure what they want to learn to do (Booth, McNally and Berry, 1976). Similarly, Shiells (1991) found that strikers to nontechnical ratings had higher graduation rates from high school and fewer representatives in the upper AFQT categories.

These sailors are assigned to jobs on ship and permitted to request assignment to various functions to determine their area of interest or their occupational aptitude. When they

find the occupation they want, they "strike" or request designation into the rating. In many of the nontechnical ratings the sailors are able to receive on-the-job training in order to obtain the rating. Strikers to the hospital corps must be sent to "A" school, just as a new recruit, to become rated.

Studies on hospital corpsmen in the Vietnam Era found "strikers" to be less likely to be in the higher AFQT categories and more likely to be high school graduates. The strikers were more likely to complete their initial enlistment than those going directly to "A" school. They were also more likely to be satisfied with the job and have fewer unmet expectations about their jobs and the Navy (Booth, McNally and Berry, 1976).

## H. MARITAL STATUS

Marital status has been identified as a significant predictor of reenlistment intention. Married sailors were more likely to reenlist than their single counterparts (Lamboni, 1987; Reardon, 1988). Married individuals are less likely to change jobs probably due to concern with job security. With the Navy's announced intention not to separate, involuntarily, any sailor in the career force ( six years of service and above), job security is enhanced after the first reenlistment point. These results may be moderated by the increasing need for two incomes in families today. The military is associated with geographic mobility, which may have a negative effect on spousal earnings. Lamboni (1987) found that spousal earnings were positively correlated with reenlistment. These results were statistically significant but small in importance. These results contradict this author's hypothesis that higher spousal earnings would reduce mobility and reenlistment intentions. With more families requiring two incomes and being concerned with job security, a higher spousal income would seem to reduce the likelihood of reenlisting and moving geographically.

## I. DELAYED ENTRY PROGRAM

The delayed entry program (DEP) was designed to level load the flow of students into the "A" schools. Most recruits join the military in the summer months corresponding to graduation from high school. In order to decrease the large numbers of students in the summer months and increase students in the non-peak months, the delayed entry program was

developed. It allows an individual to join the Navy and wait up to twelve months to begin "A" school. Because the DEP permits recruits to wait for a seat in the "A" school of their choice, it is hypothesized that entry into the DEP is correlated with success. Recruits are expected to be more successful as a result of getting the occupational training they desire rather than what was available the month they chose to join the Navy (Buddin, 1984).

Cooke and Quester (1992) found entry into the DEP was positively correlated with the three success criteria. They also found that the amount of time spent in the DEP could be used to predict success. Presumably, the longer individuals are in the DEP, the more likely they received the training desired. Also, the longer a recruit is in the DEP, the more time available to find alternatives to military service. Therefore, if an individual has been in the DEP and enlists, the individual is less likely to quit during the initial enlistment. Shiells (1991) found similar results in her study of "A" school and on-the-job training in the "soft skill" ratings. In a study focusing specifically on females, Quester found DEP to be a significant predictor of first-term attrition for female enlistees (1990). No study was found in this review to determine if this correlation can be replicated with a sample of hospital corpsmen.

## J. SUMMARY

In summary, most of the studies that have examined success in the Navy examined separate components of success. Several studies have identified predictors of attrition. Since an important criterion of success is completion of the enlistment contract, these studies are quite relevant to the prediction of success. Most attrition studies focus on characteristics present at enlistment such as age, race, gender, marital status, education, and aptitude since most attrition occurs in the first few months of enlistment.

Promotion and reenlistment are two additional criteria for success. Reenlistment studies have focused on the characteristics most associated with promotion to E-4 and retention after the initial contract. Again, these studies provide valuable information on predicting success. One important observation from the two areas of study is the different time of interest. Focusing on those characteristics common to the two time frames is likely to yield the greatest impact.

Using variables validated in previous research, this study identifies correlations between demographic and training variables and success as a hospital corpsman. Since corpsmen are required to go to formalized, follow-on training, this study determines if failure to receive the follow-on training negatively affects the success of hospital corpsmen.

### III. METHODOLOGY

This research utilized data prepared by the Defense Manpower Data Center (DMDC) in Monterey, California. The data set was a combination of data from the Military Entrance Processing Command (MEPCOM) edit file, and the Active Duty Enlisted Master file. The MEPCOM edit file contains demographic information on recruits processing to enter the military. The information contained in this file is a snapshot of the recruit at the time of in-processing such as age, home of record, race, ASVAB scores, any waivers granted at entry, physical condition, and entry programs available to the recruit. The active duty enlisted master file contains an annual snapshot record of service members. Information maintained in this file includes paygrade, NEC, education, marital status, dependents, and the unit the member is assigned.

#### A. DATA

The data set contains those individuals enlisting in the Navy in fiscal years 1985 and 1988. The data are maintained for the cohorts from the time of enlistment through 1993. This permits both cohorts the opportunity to reenlist or leave prior to the end of data collection. The data were restricted to those enlistees with no prior military service since those with prior military service are believed to behave in a different manner than individuals without prior service. Finally, the data were restricted to 4-year obligors and those with AFQT scores greater than zero. Restricting the sample to 4-year obligors provided the 1988 cohort the opportunity to reenlist one time and eliminated those recruits who are promoted to E-4 as a result of longer enlistment contracts and those in highly technical skills. Eliminating those individuals with an AFQT score of zero prevented skewing the data upward since no individual is recruited with an AFQT score of zero.

Restricting the cohorts provided sufficient numbers for analysis. The analysis was completed on three subgroups. Machinist Mates were chosen as a comparison group since the number of machinist mates in each cohort was similar to hospital corpsmen. The ASVAB requirements of hospital corpsmen were also similar to the ASVAB requirements of the machinist mates. The third subgroup was a combination of the remaining ratings from the

cohort into a subgroup, OTHER. The 1985 cohort, with the noted restrictions, consisted of 3,097 hospital corpsmen (HMs), 4,208 machinist mates (MMs), and 57,723 sailors from the OTHER subgroup. In the 1988 cohort there were 3,882 hospital corpsmen, 4,400 machinist mates, and 61,106 from the OTHER subgroup. The following sections profile the basic characteristics of the data.

### **1. Gender**

Females accounted for approximately 19 percent of the hospital corpsmen in each of the two cohorts. In the 1985 cohort less than 1 percent of the machinist mates were female, while female representation in the 1988 cohort of machinist mates rose to 3.3 percent. Females represented approximately 15 percent of the OTHER group in the 1985 cohort and 13 percent of the 1988 OTHER subgroup.

#### ***a. Hospital Corpsmen***

T-tests were run to determine if the mean values for completing their enlistments, promoting to E-4, and reenlisting are different between men and women. Females in the 1985 hospital corpsmen cohort were more likely to promote to E-4 but not significantly different from their male counterparts on the other two criteria of success. The means were significantly different for the 1988 hospital corpsmen cohort. The female hospital corpsmen were less likely than their male counterparts to complete their enlistment, but were more likely to promote to E-4 and to reenlist in the 1988 cohort.

#### ***b. Machinist Mates***

In the machinist mates subgroup the mean percent of females reenlisting was significantly lower for females than males in both cohorts. Females were more likely to be promoted to E-4 than males in cohort 1985, but were not significantly different in 1988. The female machinist mates were more likely to complete their enlistment compared to their male counterparts in the 1985 cohort but had no significant difference in the 1988 cohort.



### *c. OTHERS*

In the OTHER subgroup, in both cohorts, females were less likely to complete their enlistment and less likely to promote to E-4 than their male counterparts. However, females were more likely to reenlist in the 1985 and 1988 cohorts.

## **2. Race**

The three subgroups were analyzed in terms of their racial representation. Again t-tests were run to determine significant differences between the means of blacks and non-blacks, and Hispanics and non-Hispanics on the three success criteria.

### *a. Hospital Corpsmen*

Blacks represented approximately 18 percent of the 1985 hospital corpsmen cohort, and over 24 percent of the 1988 cohort. Hispanics also increased their representation in the hospital corps between 1985 and 1988. The percent rose from 6.6 percent to 9.8 percent. The difference in the mean percentage of blacks reenlisting was significantly greater in both cohorts compared to non-blacks. The means of those completing their enlistment and promoting to E-4 was not significantly different between blacks and non-blacks in the two cohort years. Hispanics had a greater reenlistment rate compared to non-Hispanics for cohort year 1985 but not in cohort year 1988. The means for Hispanics completing their enlistment and promoting to E-4 were not significantly different for either of the two cohort years.

### *b. Machinist Mates*

Similarly to hospital corpsmen, blacks increased their representation in the machinist mate community from 6.5 percent in cohort 1985 to 9.9 percent in cohort 1988. Hispanics also had an increase in their representation from 3.4 percent in 1985 to 5.3 percent in 1988. Blacks did not differ from non-blacks in the mean percent of those completing their enlistments in both years. The mean percent of blacks promoting to E-4 was not different from the mean of non-blacks for the 1985 cohort. However, in the 1988 cohort blacks were less likely to be promoted to E-4 than non-blacks. Blacks and Hispanics were found to have significantly lower reenlistment rates in both cohort years. Hispanics did not differ significantly from non-Hispanics in completing their enlistment or in promotion to E-4.

### *c. OTHERS*

Blacks rose from 15.2 percent to 19.5 percent from the 1985 to the 1988 cohort. Hispanics percentages increased from 5.2 percent to 7.0 percent within the same time period. In the OTHER rating subgroup there were no significant difference between Hispanics non-Hispanics in either cohort year on the three success measures.. Blacks were significantly more likely to reenlist than non-blacks in both cohort years. In the 1985 cohort, blacks were also significantly more likely to complete their enlistment and promote to E-4. In the 1988 cohort, blacks were significantly less likely to complete their enlistment but there was no significant difference in promotion to E-4.

### **3. Education**

All three subgroups had a high percentage of high school diploma graduates (HSDG). Also all three had small increases in the percentages between the two cohorts. Hospital corpsmen did not have a significant increase in the mean number of HSDGs between the two cohorts, but the machinist mates and OTHERs did have significant increases in the mean number of HSDGs in cohort 1988 compared to cohort 1985. Along with the increases in HSDGs, all three groups had a decrease in the mean number of GED recipients.

### **4. Aptitude**

Hospital corpsmen and machinist mates had a significant decrease in the mean number of Categories I and II recruits between 1985 and 1988. The OTHER subgroup had no significant change in the mean number of Categories I and II. All three subgroups had a significant increase in the mean number of Categories IIIA and IIIB from 1985 to 1988.

### **5. Age**

Most recruits are younger than 19 years of age. T-tests were run to determine if the mean percent of recruits entering the Navy younger than 19 years old was significantly different between the two cohorts. Hospital corpsmen and OTHERs had significantly more young recruits in 1988 than in 1985. The machinist mates had no significant difference in the means between 1985 and 1988.

## **B. MULTIVARIATE ESTIMATION**

A multivariate logit model was used to estimate the effect of the demographic variables on the success criteria. Logit models were chosen because the dependent variables are dichotomous. Sailors were coded 1 for meeting the criterion or 0 for failing to meet the criterion. Once the logit coefficients were obtained, the "notional person method" was used to approximate the change in the probability of success associated with an incremental change in the independent variables. The "notional person" used in evaluating the coefficients of the regressions is a white male, non-high school graduate without a GED, classified as either a CATIIB or CAT IV on the AFQT. He is over 18 years old at enlistment and did not participate in the delayed entry program. He is also single with no dependents and in the evaluation of properly trained corpsmen, he is not properly trained. To evaluate the coefficients, the probability of success is determined for this "notional person." Since all the values for the variables are zero in the "notional person," the first variable's value is changed to one and a new probability is calculated. The change in probability associated with being a high school diploma graduate (the first variable) is the difference in the probability with one as the value for this variable compared to the "notional person" with zero as the value. Probabilities are calculated with each of the variables' values changing to one while the other values remain zero.

### **1. Completed Enlistment**

The first dependent variable is completion of the initial enlistment contract (COMPENL). Sailors with 45 months and greater time in service were coded 1 for completing their enlistment and 0 otherwise. As described in the literature, the criterion of 45 months was chosen to permit those sailors not desiring to reenlist to take up to 90 days terminal leave. In the 1985 cohort, approximately 84 percent of hospital corpsmen and machinist mates completed their enlistment compared to 65 percent of the others. The machinist mates and hospital corpsmen rates remained relatively unchanged, and the rate for the OTHER group dropped to 62.2 percent in 1988.

## **2. Promotion To E-4**

The next logit models examined promotion to E-4 (PETTYOF) by the end of year 4 as the dependent variable. The promotion rates to E-4 remained relatively equal in the two cohorts for machinist mates. Eighty percent of machinist mates reached E-4 by year 4 in 1985 and 81 percent in 1988. The promotion rate dropped significantly from 1985 to 1988 for hospital corpsmen and the other ratings. Fifty-eight percent of hospital corpsmen achieved the rank of E-4 within 4 years in the 1985 cohort compared to 45 percent for the 1988 cohort.

The other ratings had only 54 percent made E-4 by year 4 in the 1985 cohort and the percentage dropped to 48 percent in cohort 1988.

## **3. Reenlistment**

The third set of logit models were run using reenlistment (REENLIST) as the dependent variable. Reenlistment rates varied between the three subgroups. Hospital corpsmen had a 64.6 percent reenlistment rate for the 1985 cohort, but 73.1 percent for 1988. The machinist mates had the highest reenlistment rates for 1985 with 77.6 percent of eligible machinist mates reenlisting. The machinist mates rate dropped to 73 percent for cohort 1988.

Tables 4 provides the names of the variables used in the logit models. The table also describes the coding of each variable.

Variable Name	Variable Description
<b>Dependent Variables</b>	
COMPENL	= 1 for Completed Enlistment; = 0 otherwise
PETTYOF	= 1 for E-4 by Year 4; = 0 otherwise
REENLIST	= 1 for Reenlisted; = 0 otherwise
<b>Explanatory Variables</b>	
HSDG	= 1 for Diploma Graduate or higher; = 0 otherwise
CAT12	= 1 for Mental Group I or II; = 0 otherwise
CAT3A	= 1 for Mental Group IIIA; = 0 otherwise
GED	= 1 for GED Recipient; = 0 otherwise
YOUNG	= 1 for Entryage 17 or 18; = 0 otherwise
DEP	= 1 for Delayed Entry Program; = 0 otherwise
MOSINDEP	Number of Months in the Delayed Entry Program
BLACK	= 1 for Black Race; = 0 otherwise
HISPANIC	= 1 for Hispanic Race; = 0 otherwise
MARRIED	= 1 for Married in Year 4; = 0 if Single
DEPS	= 1 for Dependents in Year 4; = 0 otherwise
ENLMAR	= 1 for Married at Enlistment; = 0 otherwise
DEPSI	Number of Dependent on Enlistment
FEMALE	= 1 for Females; = 0 otherwise

Table 4  
Variable Names and Descriptions of Coding

Table 5 provides the proportions and mean values of the variables used in the models.

Variable	HM 1985	HM 1988	MM 1985	MM 1988	OTHER 1985	OTHER 1988
Dependent Variables						
COMPENL	0.84	0.84	0.84	0.84	0.65	0.62
PETTYOF	0.58	0.45	0.80	0.81	0.54	0.45
REENLIST	0.65	0.73	0.78	0.73	0.64	0.64
Explanatory Variables						
HSDG	0.93	0.93	0.97	0.98	0.89	0.90
CAT12	0.40	0.34	0.76	0.64	0.40	0.39
CAT3A	0.24	0.26	0.08	0.10	0.23	0.24
CAT3B	0.31	0.33	0.11	0.20	0.28	0.29
GED	0.04	0.03	0.01	0.01	0.05	0.04
YOUNG	0.36	0.38	0.48	0.48	0.4	0.43
DEP	0.95	0.98	0.95	0.99	0.95	0.99
MOSINDEP	4.28	3.75	4.24	5.30	4.38	4.38
BLACK	0.19	0.24	0.07	0.10	0.15	0.20
HISPANIC	0.07	0.10	0.03	0.05	0.05	0.07
MARRIED	0.34	0.36	0.29	0.31	0.24	0.23
DEPENDENTS	0.31	0.33	0.29	0.32	0.24	0.22
ENLMAR	0.07	0.07	0.05	0.05	0.06	0.06
DEPSI	0.14	0.01	0.09	0.02	0.12	0.01
FEMALE	0.19	0.20	0.01	0.03	0.15	0.13

Table 5  
Proportions and Means Values of Variables  
Sorted by Rating Subgroup and Cohort

#### IV. ANALYSIS OF RESULTS

Log likelihood ratio tests were used to evaluate the coefficients of the explanatory variables to determine if they were similar enough to permit pooling of the rating groups. A level of significance of 0.05 was chosen for the statistical tests. At the 0.05 level of significance, the coefficients of the explanatory variables would not permit pooling the groups. Therefore, separate regressions were required for each of the groups, hospital corpsmen, machinist mates, and other ratings. This chapter begins with a section presenting the hospital corpsmen results. After the hospital corpsmen results, the results for the two comparison groups are presented for each success criterion. The coefficients of the explanatory variables in the comparison group regressions are presented in tables at the end of each subsection. The effect of the explanatory variables on enlistment completion is presented first, followed by their effect on promotion to petty officer E-4, and then their effect on reenlistment.

##### A. HOSPITAL CORPSMEN

###### 1. Completed Enlistment

Table 6 presents the coefficients of the variables and their Wald Chi-Square statistics for enlistment completion for hospital corpsmen in the 1985 cohort. Table 7 presents the same statistics for the 1988 cohort. Eight-four percent of hospital corpsmen completed their enlistment in both cohorts. High school diploma graduates were significantly more likely to complete their enlistment than nongraduates in both cohorts; their probabilities of completing an enlistment were 28 percent higher in the 1985 cohort and 20 percent higher in the 1988 cohort. Approximately 93 percent of hospital corpsmen were high school diploma graduates in each of the cohorts. The percentage of recruits with GEDs decreased from 3.8 percent to 3.1 percent from the 1985 cohort to the 1988 cohort. GED recipients were 16 percent more likely to complete their enlistment than nongraduates in the 1985 cohort. The attrition behavior of recruits with GEDs was similar to nongraduates in the 1988 cohort.

Aptitude as measured by classification on the AFQT did not significantly change the probability of completing their enlistment for hospital corpsmen in either cohort. These results are consistent with the previous research. Education rather than aptitude has a greater effect on attrition in hospital corpsmen. These results are consistent with the belief that educational attainment is a greater measure of the ability to adjust or follow through with a task than a measure of intelligence.

In the 1985 cohort, females and blacks were 6 percent less likely to complete their enlistment although the coefficients were significant only at the 0.10 level. Females in the 1988 cohort were 11 percent less likely to complete their enlistment. Hispanics did not differ significantly from non-Hispanics in enlistment completion behavior.

Participation in the delayed entry program was not a significant factor in either cohort. However, the length of time in the DEP was significant in both cohorts. Each month hospital corpsmen spent in the DEP increased their probability of completing their enlistment by 1 percent. This is consistent with the belief that individuals with longer stays in the DEP either receive the training they wanted or have the opportunity to attrite prior to actual entry into the Navy.

The final significant variable in explaining the completion of their enlistment for hospital corpsmen is marital status at the time of their enlistment. Married recruits from the 1988 cohort were 7 percent less likely to complete their enlistment compared to single recruits. This may be in response to the stress to the family of separation for boot camp and training. The number of dependents at enlistment was not significant in either cohort.



Variables	Coefficient	Wald Chi-Square
INTERCEPT	0.5777	
HSDG	0.27519	47.0440**
CAT12	-0.03381	1.2190
CAT3A	-0.04843	2.0892
GED	0.16167	6.5408**
YOUNG	-0.00656	0.0590
DEP	-0.01768	0.1183
MOSINDEP	0.01455	14.9975**
BLACK	-0.05801	3.2744*
HISPANIC	0.01960	0.1511
ENLMAR	-0.01771	0.0313
DEPSI	0.04348	0.6776
FEMALE	-0.06242	3.5204*
-2log Likelihood	2661.639	

Table 6  
Probabilities and Wald Chi-Square Statistics  
Enlistment Completion for Hospital Corpsmen for the 1985 Cohort

\*\* Significant at the 0.05 level

\* Significant at the 0.10 level

Variables	Coefficient	Wald Chi-Square
INTERCEPT	0.66648	
HSDG	0.20094	40.9456**
CAT12	0.03841	2.5100
CAT3A	0.02515	0.9707
GED	0.08989	2.6153
YOUNG	0.00879	0.1545
DEP	-0.06974	0.6475
MOSINDEP	0.01025	7.6565**
BLACK	0.03578	2.1549
HISPANIC	0.04261	1.5983
ENLMAR	-0.07552	4.0719**
DEPSI	-0.02399	0.0588
FEMALE	-0.11119	18.6396**
-2log likelihood	3281.994	

Table 7

Probabilities and Wald Chi-Square Statistics  
Enlistment Completion for Hospital Corpsmen in the 1988 Cohort

\*\* Significant at the 0.05 level

**2. Promotion to E-4**

Tables 8 and 9 present the coefficients and Wald Chi-square statistics for promotion to E-4 by the 4-year point for hospital corpsmen. Hospital corpsmen's promotion rate to E-4 was 58 percent for the 1985 cohort and dropped to 44.5 percent for the 1988 cohort. High school diploma graduates in the 1985 cohort were 27 percent more likely to be promoted than nongraduates, and in the 1988 cohort, 24 percent more likely.

Variables	Coefficient	Wald Chi-Square
INTERCEPT	0.24183	
HSDG	0.27349	30.0997**
CAT12	0.21773	106.4393**
CAT3A	0.0819	15.6756**
GED	0.00271	0.0026
YOUNG	-0.03419	5.3235**
DEP	-0.08154	8.4556**
MOSINDEP	0.00745	12.3612**
BLACK	-0.06215	13.4407**
HISPANIC	0.0191	0.4139
MARRIED	0.16464	28.3692**
DEPS	0.05489	3.5994*
FEMALE	0.00611	0.0964
-2log Likelihood	3837.689	

Table 8  
Probabilities and Wald Chi-Square Statistics  
Promotion to E-4 for Hospital Corpsmen in the 1985 Cohort  
\*\* Significant at the 0.05 level  
\* Significant at the 0.10 level

Promotion rates of GED recipients were no different than nongraduates in the 1985 cohort. GED recipients were 9 percent more likely than nongraduates to be promoted in those enlisting in 1988, though these results were only significant at the 0.10 level.

Being in CAT I or CAT II of the AFQT increased the probabilities of hospital corpsmen being promoted in both cohorts.

Variables	Coefficient	Wald Chi-Square
INTERCEPT	0.22812	
HSDG	0.24325	32.4006**
CAT12	0.29519	231.114**
CAT3A	0.09683	29.7697**
GED	0.09401	3.0861*
YOUNG	-0.05755	21.7655**
DEP	-0.11029	8.5512**
MOSINDEP	0.00282	1.6729
BLACK	-0.06336	21.3032**
HISPANIC	-0.01205	0.3475
MARRIED	0.08488	14.9423**
DEPS	0.08259	13.2942**
FEMALE	0.02785	2.9006*
-2log Likelihood	4814.862	

Table 9  
Probabilities and Wald Chi-Square Statistics  
Promotion to E-4 for Hospital Corpsmen in the 1988 Cohort

\*\* Significant at the 0.05 level

\* Significant at the 0.10 level

In the 1985 cohort, categories I and II corpsmen were 22 percent more likely to promote than corpsmen from below the 50th percentile on the AFQT and 30 percent more likely in the cohort from 1988. Forty percent of hospital corpsmen enlisting in 1985 were in categories I and II while 37.7 percent were in the lower 50 percentile. In the 1988 hospital corpsmen cohort, the percentage of category I and II had dropped to 33.6 percent while corpsmen below the 50th percentile increased to 40 percent.

Hospital corpsmen from CAT IIIA also were more likely to be promoted than those below the 50th percentile but the probabilities increased about 9 percent in both cohorts.

Females and Hispanics revealed no significant differences in promotion in the 1985 cohort; females however, had a 2 percent greater likelihood of promotion than males in the 1988 cohort. Blacks were 6 percent less likely to be promoted than whites in both cohorts. Younger hospital corpsmen, under 19 years old at enlistment, were 3 percent less likely to be promoted in the 1985 cohort and 6 percent less likely in the 1988 cohort. The percentage of young hospital corpsmen was approximately 34 percent in both cohorts. The average age at enlistment of corpsmen who were promoted was slightly over 20.

Again, DEP participation had conflicting effects. Hospital corpsmen entering the DEP in cohort 1985 had an 8 percent lower probability of being promoted, DEP decreased the probability by 11 percent in the 1988 cohort. However, hospital corpsmen from the 1988 cohort had a 1 percent increase in their promotion probability each month in the DEP.

Finally, being married at the end of obligated service (year 4) increased the probability of hospital corpsmen being promoted by 16 percent in the 1985 cohort and 8 percent in 1988 group. Having dependents at this point further increased the probability of being promoted. Hospital corpsmen from the 1985 cohort with dependents were 5 percent more likely to be promoted and 8 percent more likely in the 1988 cohort.

### 3. Reenlistment

Tables 10 and 11 present the probabilities and Wald Chi-Square statistics for hospital corpsmen reenlisting in each of the cohorts. Reenlistment rates are calculated as conditional probabilities based on completion of enlistment. Calculated in this way, reenlistment rates for HMs rose from 64 percent to 73 percent from the earlier to the latter cohort.

Education and aptitude had little effect on hospital corpsmen reenlistment probabilities. Categories I and II HMs from the 1985 cohort had a 6 percent higher probability of reenlisting, while HMs in the 1988 cohort had only a 2 percent increase.

The small effect that education and aptitude have on reenlistment may be due to the large effect each variable has on the probability of hospital corpsmen completing their enlistment. Since hospital corpsmen cannot reenlist unless they complete their enlistments, the effect on reenlistment may be reduced.

Female reenlistment probabilities were not different from males in the 1985 cohort. However, females in the 1988 cohort were 2 percent more likely to reenlist. Both blacks and Hispanics were more likely to reenlist in the earlier cohort compared to their white counterparts, with rates 10 and 14 percent higher, respectively. In the latter cohort blacks' reenlistment rates were 3 percent higher than whites. There was no difference in reenlistment rates for Hispanics in the latter cohort.

Younger corpsmen were less likely to reenlist than corpsmen 19 year of age and older. Young corpsmen were 5 percent less likely to reenlist in the 1985 cohort and 3 percent less likely in the 1988 cohort. Younger corpsmen may be more willing to market their skills in the civilian market than older corpsmen. The Human Capital theory supports this reduced reenlistment behavior. Participation in the DEP was associated with a 14 percent lower probability of reenlisting for corpsmen in the 1985 cohort. DEP was associated with a 10 percent lower reenlistment probability in the 1988 cohort, though only at the 0.10 level of significance. This may be due to HMs who enter the DEP are able to schedule their entry into the Navy to coincide with openings in the "C" schools, which prepare corpsmen for NECs that closely parallel civilian healthcare occupations. Unlike the other two success criteria, time in the DEP did not have any effect on reenlistment.

Corpsmen who were married at the 4-year point had a 10 percent higher probability of reenlisting in the 1985 cohort and 4 percent higher probability for the 1988 cohort compared to single corpsmen. Having dependents only increased the probability of reenlisting in the 1988 cohort by 4 percent.

Variables	Coefficient	Wald Chi-Square
INTERCEPT	.66952	
HSDG	.0291	.2333
CAT12	.006393	9.00639**
CAT3A	-.0114	.2084
GED	-.04082	.2536
YOUNG	-.04795	5.2088**
DEP	-.14536	8.2831**
MOSINDEP	.00249	.8569
BLACK	.10576	20.4321**
HISPANIC	.14264	16.081**
MARRIED	.0981	11.2836**
DEPS	-.03732	1.2316
FEMALE	.00232	.0082
-2log Likelihood	3288.806	

Table 10  
Probabilities and Wald Chi-Square Statistics  
Reenlistment for Hospital Corpsmen in the 1985 Cohort  
\*\* Significant at the 0.05 level

Variables	Coefficient	Wald Chi-Square
INTERCEPT	.8498	
HSDG	-.03899	1.289
CAT12	.02556	4.6221**
CAT3A	-.01413	1.0822
GED	-.05957	1.4924
YOUNG	-.03312	7.2954**
DEP	-.1054	2.8379*
MOSINDEP	-.00302	2.8472*
BLACK	.03524	9.0505**
HISPANIC	-.01923	1.1766
MARRIED	.03904	7.2932**
DEPS	.03663	5.9399**
FEMALE	.02509	3.7278*
-2log Likelihood	3706.751	

Table 11  
Probabilities and Wald Chi-Square Statistics  
Reenlistment for Hospital Corpsmen in the 1988 Cohort

\*\* Significant at the 0.05 level

\* Significant at the 0.10 level

## B. COMPARISON GROUPS

The two comparison groups are machinist mates and those in all other enlisted ratings other than hospital corpsmen and machinist mates. The changes in probabilities for success for each comparison group are combined in a single table for each success criterion. Both cohort years are also presented for the two rating groups in a single table.

### 1. Completion of Enlistment

Table 12 presents the probabilities of enlistment completion for the two comparison groups and two cohorts. Similar to the hospital corpsmen, high school diploma graduates in the comparison groups were more likely to complete their enlistment compared to non-



graduates. However, for machinist mates enlisting in 1985, having a high school diploma did not significantly affect the probability of enlistment completion. This is probably due to over 97 percent of machinist mates having high school diplomas. Sailors in the OTHER group with a GED were approximately 3 percent more likely to complete their enlistment in both cohorts. The percent of sailors with GEDs in the OTHER group stayed at approximately 5 percent for both cohorts.

	Machinist Mates		OTHER Ratings	
	1985 Cohort	1988 Cohort	1985 Cohort	1988 Cohort
INTERCEPT	.84858	.87001	.31818	.39322
HSDG	.04713	.07191**	.27795**	.2432**
CAT12	-.16099**	-.06475**	.06975**	.06059**
CAT3A	-.0905**	-.04796**	.02829**	.02772**
GED	.03386	.06737	.03802**	.03493**
YOUNG	-.01642	-.0101	-.0072*	-.0024
DEP	.03173	-.09318	-.0064	-.07074**
MOSINDEP	.00334*	.00011	.01135**	.01347**
BLACK	-.02581	-.02478	.03584**	.00704
HISPANIC	.01417	-.01334	.01737*	.03996**
ENLMAR	.04845	.01725	-.01352	-.02973**
DEPSI	-.02646	-.02302	.00747	.01343
FEMALE	.10963	-.06244**	-.07179**	-.05668**
-2log Likelihood	3644.412	3769.394	72067.483	78998.638

Table 12  
Probability of Enlistment Completion for Machinist Mates and OTHER Ratings  
for the 1985 and 1988 Cohorts

\*\* Significant at the 0.05 level

\* Significant at the 0.10 level

Approximately 76 percent of the 1985 cohort of machinist mates were CAT I or II. That percentage dropped to 64 percent in the 1988 cohort. Surprisingly, being in CAT I or II decreased the probability of MMs completing their enlistments. For MMs enlisting in 1985, CAT I and II decreased the probability of enlistment completion by 16 percent. The 1988 MM cohort's probability decreased by only 6 percent. CAT IIIA was also associated with a lower probability of enlistment completion for the machinist mates in both cohorts. CAT IIIA MMs from the 1985 cohort were 9 percent less likely to complete their enlistment, while the probabilities were 5 percent lower for MMs in the 1988 cohort. The lower probabilities may be associated with sailors in the higher AFQT categories selecting the more difficult technical training. The most technical skills have longer and more difficult schools, and each are associated with lower completion rates. Each of these characteristics of training have been associated with higher attrition rates, especially non-academic attrition.

Females were less likely to complete their enlistment in the 1988 cohort of MMs. Females' probabilities of completing their enlistment were 6 percent lower than males in the 1988 machinist mates cohort. Females were also less likely to complete their enlistment in the OTHER group for both cohorts. Females enlisting in 1985 were 7 percent less likely than males to complete their enlistment, and 6 percent less likely in the 1988 cohort. Blacks had higher completion probabilities in the 1985 OTHER cohort. Their probabilities were approximately 3 percent higher than non-blacks. Hispanics were also more likely to complete their enlistment in both of the OTHER cohorts. In the 1985 cohort, Hispanics' probabilities were 1 percent higher and 3 percent higher in the 1988 cohort compared to non-Hispanics. Hispanic rates were not significant in the machinist mates' cohorts.

Participation in the delayed entry program was only significant in the 1988 OTHER group. Entry into the DEP decreased their probabilities of completing their enlistment by 7 percent. Again, similar to the hospital corpsmen, the probabilities of

enlistment completion increased by 1 percent for each month in the DEP in the OTHER group.

Hospital corpsmen's probability of completing their enlistment are more similar to the OTHER group than to machinist mates. Hospital corpsmen are more similar to OTHERs than MMs in terms of the percentages of high school diploma graduates, GEDs, and their spread of AFQT scores. Minority representation, race and gender, for hospital corpsmen were also more similar to the OTHER group than to the machinist mates. From the literature, education level and minority status are associated with differences in attrition or enlistment completion rates.

## **2. Promotion to E-4**

Table 13 presents the probabilities of promotion for each of the two groups and cohorts. Hospital corpsmen's promotion probabilities again are more similar to the OTHER ratings than to machinist mates. High school diploma graduates are more likely to be promoted than nongraduates. In each cohort, high school diploma graduates in the OTHER group had a 19 percent higher probability of promotion. High school diploma graduates were 11 percent more likely to promote than nongraduates in the 1988 machinist mates cohort. High school graduation was not a significant variable in promotion for the 1985 machinist mate cohort.

CAT I and II sailors in the OTHER group had higher promotion probabilities than CAT IIIB and CAT IV sailors in both cohorts. In the 1985 cohort, sailors in CAT I and II were 9 percent more likely to be promoted, and 10 percent more likely in the 1988 cohort. Surprisingly, CAT I and II were associated with a 9 percent decrease in the probability of machinist mates being promoted in the 1985 cohort. This is probably because the probability of promotion is not a conditional probability and includes the increased attrition probability of these groups. CAT I and II machinist mates', from the 1988 cohort, probability of promotion was 3 percent greater than CAT IIIB and CAT IV machinist mates. CAT IIIA was associated with a 9 percent lower probability of promotion for the 1985 machinist mates cohort and no difference in the 1988 cohort.

Being female or Hispanic was not significant in either cohort of machinist mates. Females and Hispanics had lower promotion probabilities than males and non-Hispanics in yeargroup 1985. Females' probabilities of promotion were 4 percent lower than males in both cohorts. Hispanics were less than 1 percent less likely to promote than non-Hispanics in the earlier cohort and had no difference in the latter cohort. Blacks from the 1985 cohort had lower promotion probabilities in both rating groups. Those blacks in the 1988 OTHER cohort were also less likely to be promoted, and there was no difference for MMs in the 1988 cohort. Blacks were 7 percent less likely to promote in the 1985 machinist mate cohort and approximately 1 percent less likely in both of the OTHER cohorts.

Similar to the hospital corpsmen, married sailors and sailors with dependents were more likely to promoted than single sailors and those without dependents. Married sailors were approximately 16 percent more likely to promote than single sailors in both groups and for both cohorts. Dependents increased the probability of promotion by approximately another 15 percent in both groups.

Unlike the hospital corpsmen, participation in the delayed entry program was not significant in the 1985 cohort of machinist mates. DEP had a significant effect on the 1988 machinist mates cohort, decreasing the probability of promotion by 33 percent. Sailors in the OTHER group experienced a 2 percent decrease in their probability of promotion in the 1988 cohort. Even though DEP had negative effects on promotion, like the hospital corpsmen, the probability of promotion increased 1 percent for each month spent in the DEP.

	MACHINIST MATES		OTHER RATINGS	
	1985 Cohort	1988 Cohort	1985 Cohort	1988 Cohort
INTERCEPT	.67225	.80696	.11245	.12768
HSDG	.08534	.10761**	.20653**	.19648**
CAT12	-.08992**	.03483**	.08607**	.09817**
CAT3A	-.09312**	.01862	.03697**	.04458**
GED	-.00841	.06288	.03228**	.03672**
YOUNG	.00939	.00281	.00295	.00254
DEP	.0255	-.32469**	.00886**	-.01778**
MOSINDEP	.00583**	.00075	.00587**	.00567**
BLACK	-.07669*	-.02714	-.00952**	-.01457**
HISPANIC	.0097	-.01982	-.00992**	.0016
MARRIED	.17783**	.12646**	.18739**	.17533**
DEPS	.20499**	.13297**	.15033**	.15775**
FEMALE	.1875	-.05004	-.03597**	-.03267**
-2log Likelihood	3806.246	3800.185	67782.951	73668.444

Table 13  
Probability of Promotion to E-4 for Machinist Mates and Other Ratings  
for the 1985 and 1988 Cohorts  
\*\* Significant at the 0.05 level  
\* Significant at the 0.10 level

### 3. Reenlistment

Table 14 presents the probabilities of reenlistment for machinist mates and OTHERs in the 1985 and 1988 cohorts. The reenlistment behavior of hospital corpsmen and sailors from the OTHER group are affected by similar demographic characteristics. Reenlistment probabilities in the OTHER cohorts were increased by high school graduation. High school graduates in the 1985 cohort were 11 percent more likely to reenlist, and 7 percent more likely in the 1988 cohort. GED recipients in the OTHER

cohorts had an 8 percent greater likelihood of reenlisting than non-graduates in both cohorts.

Being in CAT I or II increased the reenlistment probabilities for both rating groups and both cohorts. CAT I or II machinist mates in the 1985 cohort were 52 percent more likely to reenlist, and 28 percent more likely in the 1988 cohort. Sailors in CAT I and II from the 1985 OTHER cohort were 24 percent more likely to reenlist, and 20 percent in the 1988 cohort. Sailors in the OTHER group classified as CAT IIIA were approximately 7 percent more likely to reenlist in both cohorts. This differs from the hospital corpsmen cohorts that had no change in the likelihood of reenlisting associated with CAT IIIA.

Like the hospital corpsmen, blacks were more likely to reenlist than non-blacks in the two comparison groups and in both cohorts. Black machinist mates were 8 and 11 percent more likely to reenlist in cohorts 1985 and 1988, respectively. The percent increases for the OTHER group cohorts were 11 and 12 percent, respectively. Females were not significantly different from males in the machinist mates cohorts. Females were 5 percent more likely to reenlist in the 1985 OTHER cohort and 2 percent in the 1988 cohort. Similar to the hospital corpsmen, Hispanics from the OTHER group were 3 percent more likely to reenlist in the 1985 cohort.

Participation in the DEP decreased the probability of reenlistment for machinist mates in the 1988 cohort by 44 percent. The OTHER group had an 11 percent decrease in both cohort years. Only the OTHER group had increased probabilities associated with longer stays in the DEP, though the change was less than 1 percent. This is consistent with the effect these variables had on hospital corpsmen.

Being married at the 4-year point increased the probability of reenlisting for both rating groups in both cohorts. Having dependents was associated with higher probabilities of reenlisting for both OTHER cohorts and the 1985 machinist mates cohort. Dependents increased the probabilities of reenlisting by approximately 6 percent.

Age was another characteristic where hospital corpsmen and OTHER ratings were similar response to young recruits. Young recruits in the OTHER group had 2 percent and

5 percent decreases in reenlistment probabilities in cohorts 1985 and 1988, respectively.

These percentages are similar to those affecting hospital corpsmen.

	MACHINIST MATES		OTHER RATINGS	
	1985 Cohort	1988 Cohort	1985 Cohort	1988 Cohort
INTERCEPT	.31482	.69493	.44033	.52576
HSDG	.15393*	.07107	.10844**	.07259**
CAT12	.51501**	.2836**	.23741**	.19114**
CAT3A	.0593	.10467**	.09228**	.06334**
GED	-.00919	-.13697	.08412**	.07517**
YOUNG	-.02066	-.03587	-.01692**	-.05439**
DEP	-.06123	-.44027**	-.11099**	-.11331**
MOSINDEP	.00207	.00143	.00696**	.0019**
BLACK	.08403**	.11223**	.11811**	.12355**
HISPANIC	-.07805*	-.03054	.03114**	.01222
MARRIED	.15265**	.03633	.06169**	.08605**
DEPS	-.0379	.10994**	.05395**	.07145**
FEMALE	-.1008	-.04575	.05806**	.02628**
-2log Likelihood	3060.576	3273.392	46950.338	47611.243

Table 14  
Probability of Reenlistment for Machinist Mates and Other Ratings  
for the 1985 and 1988 Cohorts

\*\* Significant at the 0.05 level

\* Significant at the 0.10 level

### C. PROPER TRAINING FOR HOSPITAL CORPSMEN

PROPTRA, a variable used to capture whether or not a hospital corpsman received the follow-on training determined to be appropriate was added to the logit success models. As expected, being properly trained was significant in models for enlistment completion for cohorts 1985 and 1988. In the 1985 cohort, hospital corpsmen who had received a 24

month follow-on training program at a designated training site were 22 percent more likely to complete their enlistment than those who did not receive the proper training. The increase in the probability of success was 18 percent for the 1988 cohort. On further analysis of those hospital corpsmen who were designated to have not received the proper training, the majority of these corpsmen were assigned to Naval Hospital Philadelphia, Pennsylvania and Naval Hospital Long Beach, California. Neither of these hospitals were designated as follow-on training sites and both are closed today.

Proper training did not significantly affect one's promotion probability in the 1985 cohort. Interestingly, corpsmen from the 1988 cohort who received the proper training were 4 percent less likely to be promoted. Promotion rates were lower for all groups in the 1988 cohort, presumably due to the downsizing of the Navy and the desire of the Navy not to involuntarily separate any sailors interested in a career. With competition for promotion greater, those corpsmen assigned to shore duty at the training sites may have been less competitive compared to those corpsmen who received their follow-on training aboard ship.

Reenlistment was negatively affected in the 1985 cohort and positively affected in the 1988 cohort. In the 1985 cohort, properly trained corpsmen were 4 percent less likely to reenlist. The civilian job opportunities may have been a factor for properly trained hospital corpsmen to choose not to reenlist. For the latter cohort, proper training increased the probability of reenlistment by 3 percent for hospital corpsmen.

#### **D. PROFILE OF A SUCCESSFUL HOSPITAL CORPSMEN**

The profile of a successful hospital corpsman is different from the profile of a successful machinist mate. However, the profile is not significantly different from the profile of sailors in the OTHER group. In developing the profile, more weight is placed on the profile developed from the 1988 cohort since their success behaviors occurred during the drawdown and manning levels are expected to continue to decrease. The successful hospital corpsmen is a white male over the age of 20 at the time of enlistment. He is a high school diploma graduate who is classified as either a CAT I or CAT II on the AFQT. He enters bootcamp in the same month he signs his enlistment contract or spends at least 4



months in the DEP. He is single at enlistment but marries and starts a family prior to his first reenlistment decision. He either attends a "C" school or is sent to one of the designated follow-on training sites after graduation from Hospital Corps School.



## V. SUMMARY AND RECOMMENDATION

This thesis developed models to predict what type of hospital corpsmen are the most likely to be successful. Different models were developed and tested for three measures of success: completion of the first enlistment contract, promotion to petty officer during the first contract, and reenlistment. These models were applied to two cohorts of hospital corpsmen, machinist mates, and a group of all other ratings, one for two accession year 1985 and one for accession year 1988. Thirteen demographic variables were included in the models to predict success, the models were estimated for three rating groups, for each of the cohorts. This thesis identified those variables that significantly increased or decreased a hospital corpsman's probability of success. The probability changes were compared to the changes in probabilities for the two comparison groups -- machinist mates and all others. Finally, the effect of receiving proper training on the three success criteria was evaluated for hospital corpsmen.

### A. SUMMARY

Tables 15 through 17 present the estimated effect of each demographic variable on the probabilities of success. An estimate is determined to be not significant if the estimate is not significant at the 0.05 level in either cohort, or if the estimated probability change is less than 1 percent.

#### 1. Educational Status

The single most important variable in predicting success for hospital corpsmen was completing high school with a diploma compared to non-graduates and certificate (GED) recipients. High school diploma graduates were approximately 23 percent more likely to complete their initial enlistment and approximately 25 percent more likely to be promoted to E-4 during their first term. High school graduation was not significant in predicting reenlistment except in the OTHER ratings cohorts. This is probably due to the large effect high school diploma graduation has on the other two outcomes. Corpsmen are not considered for reenlistment unless they complete their enlistment and have obtained the rank of E-4. High school graduation affected the

OTHER ratings cohorts and HM cohorts similarly, but had a smaller affect on the MM cohorts. Both the OTHERs and HMs had approximately 24 percent greater likelihood of completing their enlistment than nongraduates. High school graduates in the OTHER ratings cohorts were only 20 percent more likely to be promoted than nongraduates. Also high school graduates were 9 percent more likely to reenlist in both OTHER cohorts. In the MM cohorts high school diploma graduation did not affect the three success criterion to the magnitude of the OTHERs and HMs and the effect did not occur in both cohorts.

GED recipients were more likely to complete their enlistment than non-graduates. However, those hospital corpsmen who were successful, measured by completing their enlistment, promotion to E-4, or reenlistment, were less likely to have GEDs than those who were not successful. These results are consistent for the OTHER rating cohorts. MMs with GEDs were not significantly different from nongraduates in any of the three success criterion.

## **2. Aptitude**

Aptitude measured by AFQT test score category had no significant effect on any of the three success criterion in either cohort of hospital corpsmen except that CAT I and CATII HMs were 2 percent more likely to reenlist. A larger percentage of hospital corpsmen who were promoted and reenlisted were CAT I or CAT II compared to those who fail to promote or to reenlist. A larger percentage of CAT IIIA corpsmen were in the unsuccessful group than in the successful group. MMs in CAT I or CAT II were less likely to complete their enlistment and be promoted but significantly more likely to reenlist. Being in CAT I or CAT II increased the likelihood of MMs reenlisting by over 50 percent in the 1985 cohort and 28 percent in the 1988 cohort. With regard to aptitude, the OTHER ratings were similar to the MMs.

## **3. Minorities**

Females were the only sub-group of HMs to be less likely to complete their enlistment. There were no gender differences in the promotion or reenlistment probability. MMs had very few females. Female MMs were 6 percent less likely to complete their enlistment, 6 percent more likely to promote and 5 percent less likely to

reenlist in the 1988 cohort. A 10 percent lower reenlistment rate was the only difference for female MMs in 1985. Women were less likely to complete their enlistment and be promoted in the OTHER cohorts, but were approximately 4 percent more likely to reenlist.

Blacks were not as successful as non-blacks in promotion to E-4 in either year. However, blacks were more likely to reenlist. Black machinist mates were not significantly different from non-blacks except in reenlistment probability. Blacks were 10 percent more likely to reenlist in both cohorts. Blacks in the OTHER ratings were 4 percent more likely complete their enlistment, 1 percent less likely to promote, and 11 percent more likely to reenlist.

The only criterion of success where Hispanics differed from non-Hispanics in the HM cohorts was in the reenlistment probability for the 1985 cohort. Hispanic HMs were approximately 14 percent more likely to reenlist. There was no difference in enlistment completion or promotion in either cohort. Hispanic MMs were not significantly different from non-Hispanics in the three criteria. OTHER Hispanics were 3 percent more likely to complete their enlistment in both cohorts and 3 percent more likely to reenlist in the 1985 cohort.

#### **4. Other Demographics**

Those hospital corpsmen promoted to E-4 were on average 1 year older at enlistment than those corpsmen who were not promoted. Again, older hospital corpsmen were more likely to reenlist but the difference in age at enlistment was only 0.5 years for those reenlisting compared to those not reenlisting. The difference in age between those sailors who complete their enlistment, are promoted, and reenlist for a second term and those who attrite, or fail to promote or to reenlist is only 4 months in the comparison ratings.

Being married and/or having dependents at enlistment did not affect the probability of success. However, marital and dependent status at the 4-year point was significant in increasing the probability of promotion and reenlistment for hospital corpsmen. Married corpsmen with dependents were more likely to be promoted and to reenlist. Again these

results are consistent across the three rating groups. MMs in the 1985 cohort had a large increase in reenlistment probability associated with being married at the end of their contract. The other two rating groups had approximately 9 percent increases for married compared to single sailors, but the MMs had a 16 percent increase.

	Hospital Corpsmen		Machinist Mates		OTHER Ratings	
Variable	1985	1988	1985	1988	1985	1988
HSDG	.28	.20	ns	.07	.27	.24
CAT12	ns	ns	-.16	-.06	.07	.06
CAT3A	ns	ns	-.09	-.05	.03	.03
GED	.16	ns	ns	ns	.04	.03
YOUNG	ns	ns	ns	ns	ns	ns
DEP	ns	ns	ns	ns	ns	-.07
MOSINDEP	.01	.01	ns	ns	.01	.01
BLACK	ns	ns	ns	ns	.04	ns
HISPANIC	ns	ns	ns	ns	.02	.04
ENLMAR	ns	-.07	ns	ns	ns	-.03
DEPSI	ns	ns	ns	ns	ns	ns
FEMALE	ns	-.11	ns	-.06	-.07	-.06

ns = Not Significant

Table 15  
Estimated Effect on Probabilities of Enlistment Completion  
for Each Demographic Variable, By Rating Group

## 5. Proper Training

Those hospital corpsmen going to follow-on training sites for at least 24 months after graduation from Hospital Corps School were more likely to complete their enlistment than those who did not receive the proper training. Properly trained hospital corpsmen were surprisingly less likely to promote in the 1988 cohort and less likely to reenlist in the 1985 cohort. Proper training did increase the probability of reenlistment for the 1988 hospital corpsmen cohort.

	Hospital Corpsmen		Machinist Mates		OTHER Ratings	
Variable	1985	1988	1985	1988	1985	1988
HSDG	.27	.24	ns	.10	.20	.20
CAT12	.21	.29	-.09	.03	.09	.10
CAT3A	.08	.09	-.09	ns	.04	.04
GED	ns	ns	ns	ns	.03	.03
YOUNG	-.03	-.06	ns	ns	ns	ns
DEP	-.08	-.11	ns	-.32	ns	-.02
MOSINDEP	ns	ns	ns	ns	ns	ns
BLACK	-.06	-.06	ns	ns	ns	-.01
HISPANIC	ns	ns	ns	ns	ns	ns
MARRIED	.16	.08	.18	.12	.19	.18
DEPS	ns	.08	.20	.13	.15	.15
FEMALE	ns	ns	ns	.06	-.04	-.03

ns = Not Significant

Table 16  
Estimated Effect on Probabilities of Promotion to E-4  
for Each Demographic Variable, By Rating Group

	Hospital Corpsmen		Machinist Mates		OTHER Ratings	
Variable	1985	1988	1985	1988	1985	1988
HSDG	ns	ns	ns	ns	.10	.08
CAT12	ns	.02	.52	.28	.23	.19
CAT3A	ns	ns	ns	.10	.09	.06
GED	ns	ns	ns	ns	.08	.07
YOUNG	-.05	-.03	ns	ns	-.02	-.05
DEP	-.14	ns	ns	-.44	-.11	-.11
MOSINDEP	ns	ns	ns	ns	ns	ns
BLACK	.10	.04	.08	.11	.11	.12
HISPANIC	.14	ns	ns	ns	.03	ns
MARRIED	.10	.04	.15	ns	.06	.08
DEPS	ns	.04	ns	.11	.05	.07
FEMALE	ns	ns	-.10	-.05	.05	.03

ns = Not Significant

Table 17  
Estimated Effect on Probabilities of Reenlistment  
for Each Demographic Variable, By Rating Group

## B. RECOMMENDATIONS

The first recommendation for those persons responsible for selecting recruits for the hospital corpsman rating is to concentrate on older recruits, especially recruits in their early twenties. The mean age at entry of successful hospital corpsmen is approximately 20.5 years of age. This compares to a mean age of unsuccessful hospital corpsmen of 19.5.

Another recommendation is to decrease or keep the current level of GED recipients in the recruit pool. The proportion of recruits entering the hospital corps with GEDs were



between 3 and 4 percent in the cohorts studied. The percentage of those with a GED who did not complete their enlistment was approximately twice the GED representation in the HM cohorts. Over 93 percent of HMs in both cohorts had high school diplomas. With the expected decrease in the size of the Navy Medical Department, GED representation should be maintained or be reduced.

The third recommendation is that more hospital corpsmen should be sent to follow-on training sites after graduation from Hospital Corps School. Since the Navy loses more when hospital corpsmen attrite or fail to complete their enlistment, the observed significant effect of proper training on enlistment completion makes this an important factor. Again, because promotion and reenlistment are not independent of enlistment completion, those factors that increase the probability of hospital corpsmen completing their enlistment also increase the hospital corpsmen's potential for success.



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